Sniffing Out and Fixing Fishy Domain Name Configurations

The DNS is a critical component of the Internet. It provides information essential to the operation of every Internet service and application. Operational decisions and deployment choices need to be soundly made in order to create a balancing act between the complexity, overhead, security and resilience of the DNS system.

DNS relies on a delegation: resolution of a name to its IP address requires resolving the names of the servers responsible for that name, which in turn, depend on their name resolutions, creating complex interdependencies among DNS zones and servers.

Dns falls 143.210.4.16

http://www.le.ac.uk

Improve availability, resilience and security without compromising the robustness and redundancy achieved by the diversity and distribution of DNS servers.

Bad Smells and Refactoring

We utilize dependency graphs to detect vulnerabilities and propose graph-based refactoring rules to repair them.

References:
1. E. Osterweil, et. al. “Operational implications of the DNS control plane”
2. V. Ram. et. al. “Perils of transitive trust in the domain name system,”
3. C. Deccio “Measuring availability in the domain name system”